

A mesh meta-analysis comparing the effects of different exercise training on physical function in patients with systemic lupus erythematosus

INPLASY202360089

doi: 10.37766/inplasy2023.6.0089

Received: 29 June 2023

Published: 29 June 2023

Corresponding author:

Yinghua Pan

panyinghua2012@163.com

Author Affiliation:

The third affiliated hospital, Sun Yat-sen university.

Pan, YH¹; Fang, HY².**ADMINISTRATIVE INFORMATION****Support** - A2020127、2021A1515220110.**Review Stage at time of this submission** - Preliminary searches.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202360089**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 June 2023 and was last updated on 29 June 2023.**INTRODUCTION**

Review question / Objective In this study, mesh meta-analysis was used to compare the effects of different exercise interventions and traditional nursing practices on the improvement of physical function in patients with systemic lupus erythematosus, in order to provide references for clinical application. The research method chosen in this study is RCT experiment. P: systemic lupus erythematosus patients; I: Different sports training; C: Routine care; O: Bodily functions.

Condition being studied The applicant unit of the project is a comprehensive third-level A hospital directly managed by the Ministry of Health. The hospital has a complete range of disciplines and obvious specialty characteristics, with 5 national key disciplines, 7 national clinical key specialties of the Ministry of Health, 25 clinical key specialties of Guangdong Province, 32 key disciplines of Guangdong Province, and formed a number of strong discipline groups, which not only enjoys a high reputation in Guangdong Province and South

China, but also has a certain influence in the whole country. The hospital strives to build a high-level scientific research base and high-quality academic platform, with 3 provincial and ministerial level key laboratories, 5 provincial and ministerial level research centers, 4 department level laboratories and research centers, and 9 national drug clinical trial qualification specialties; He has hosted and undertaken national magazines such as "New Medicine", "Organ Transplantation", "Chinese Journal of Endoscopic Urology (electronic edition)" and "Chinese Journal of Liver Surgery".

The Department of Rheumatology and immunology is one of the earliest rheumatology specialties in China, the founding and leading discipline of Guangdong Rheumatology Department and the Rheumatology Branch of Guangdong Medical Association. It is also a national clinical key specialty, a key specialty of Guangdong Province's "five ones" science and education and medicine, and a key discipline of Guangdong Province's ordinary colleges and universities. At present, it is the largest and most complete doctoral program and postdoctoral mobile station of rheumatology in Guangdong and even South China. Over the years,

the discipline has received more than 40 million national and provincial research funds, and has published 563 academic papers at home and abroad, including 56 SCI papers published in recent years, including academic papers published in the international top journal Nature genetics, and related research has been concerned and praised by domestic and foreign peers. In the past three years, the department has hosted three "China Ankylosing spondylitis International Forum", attended by more than 1,400 peer experts from 26 countries or regions, which has promoted academic exchanges at home and abroad in this field.

METHODS

Participant or population The incidence of systemic lupus erythematosus is 70/100,000. Due to SLE, multiple organs, repeated symptoms, and long course of disease, patients are prone to negative psychology. Foreign studies have shown that about 19% to 63% of SLE patients suffer from anxiety, and the incidence of depression is similar to anxiety, reaching 15% to 60%. Domestic studies have found that the incidence of anxiety in SLE patients is 29.5%-64.5%, and the incidence of depression is 24-60.5%, which is slightly higher than the incidence in foreign countries. However, at present, there are more researches on anxiety and depression at home and abroad, and less researches on positive psychology such as mental resilience.

Intervention Studies have shown that exercise is an influential factor in the mental resilience of SLE patients, and exercise intervention is beneficial to the recovery of SLE patients. The current exercise interventions for SLE patients include aerobic exercise, resistance training and the combination of aerobic exercise and resistance training. Exercise/physical activity has an important impact on immune system function in SLE patients. Exercise training/physical activity has emerged as a promising treatment strategy to combat physical dysfunction in adults with SLE.

Comparator Routine care.

Study designs to be included RCT.

Eligibility criteria Patients with SLE who met the American College of Rheumatology 1997 criteria were 18 years of age or older.

Information sources Cochrane Library, PubMed, Embase, Web of Science, Wanfang Database, CNKI, VIP database, Chinese Biomedical Literature

Database and other Chinese and English databases were searched by computer.

Main outcome(s) Physical function (pace, standing and walking timing, etc.), muscle strength (grip strength, etc.)

Quality assessment / Risk of bias analysis The Cochrane Manual 5.1.0 Randomized Controlled Trial Bias Risk Assessment Scale.

Strategy of data synthesis The bias risk quality assessment tool in Review Manager 5.3 was used for quality assessment, and the original study directly compared with two of the same interventions was tested for heterogeneity. If $I^2 \leq 50\%$ or $P > 0.1$, no heterogeneity was indicated. If $I^2 > 50\%$ or $P < 0.1$, the heterogeneity was large, and the source of heterogeneity was further analyzed. The network meta-analysis was performed using Stata 14.0 software. Consistency test was performed first. When closed-loop evidence network existed, node-cutting method was used for consistency test, and $P > 0.05$ indicated no significant inconsistency between direct comparison and indirect comparison. Secondly, pairwise comparison between different sports training was conducted, and $P < 0.05$ suggested that the difference was statistically significant. Finally, surface under the cumulative ranking (SUCRA) was used to compare the efficacy of different exercise training interventions. The greater the SUCRA value, the better the efficacy of the exercise training method.

Subgroup analysis Subgroup studies were conducted according to duration of disease less than 5 years and duration of disease greater than 5 years.

Sensitivity analysis STATA software carries out sensitivity analysis to reflect the sensitivity of the article by the change of the effect size after deleting one of the articles.

Country(ies) involved China.

Keywords Systemic lupus erythematosus; Exercise; Physical function; Mesh meta-analysis; Rehabilitation nursing.

Contributions of each author

Author 1 - Yinghua Pan.

Author 2 - Hengying Fang.